PLAN 745: Development Impact Assessment

Professor Todd BenDor  
Email: bendor@unc.edu  
Phone: 919-843-5990  
Office Hours: All the time, but by Appt. (please email to confirm availability)  
Office: Room 231B, Odum Institute, Davis Library [second floor, behind research hub]

Teaching Assistant: Jordan Branham  
Email: jbranham@live.unc.edu  
Office Hours: 9-10 M and 3-4pm TH and by Appt.  
Office: Whitehead Hall 305

Course approach and objectives

Development impact assessments are used in a variety of ways in public and private planning, including evaluation of land use planning alternatives, assessment of private and public development proposals, and marketing of development proposals.

In this class, you will learn the skills and techniques needed for predicting, evaluating, and mitigating potential adverse impacts of land development projects, particularly as they affect urban infrastructure. You will also develop skills in documenting and reporting impact assessment analyses, findings, and recommendations in a competent, professional manner. By analyzing and discussing various examples of those applications, the course will help you develop an appreciation of the strengths and limitations of various impact assessment approaches in specific applications. You will also learn to critically approach impact assessment and analyze others' assessments.

The course will meet for two sessions each week, which will include lectures and discussion of key concepts covered in lectures and assigned readings. Occasional sessions will consist of field trips and guest speakers. While the lectures, field trips, and readings are important, an equally critical aspect of learning in this course comes from your preparation of a range of impact assessments for a variety of different types of development projects.

What is this syllabus?

This document is many things. 1) It is a planning document, so you can plan your time commitment for reading and assignments. 2) It is a roadmap through the class that aims to give you bearings for each class. 3) It is also a contract of sorts, telling you the level of effort that I intend to put into course as a teacher, as well as the level of effort that I expect from you as a student.

How can you do well in this class?

To do well in this course, I expect you to spend significant time and effort: 1) on the impact assessment assignments, and 2) working through the reading material in advance of class. I also expect you to 3) attend class and participate (as defined below).

Time Commitment: In this course, you should expect to spend at least 3 hours outside of class for each hour you spend in class. This amounts to at least 7-8 hours per week outside of class. It is likely, however, that during some weeks, this course will require much more time, and in other weeks, it will require much less time.

What is participation? Participation means that you are actively listening and engaging in classroom discussions, as well as engaging the class with your own questions, whether you bring them in class or through the question website that I have created for PLAN 745: http://planquestions.web.unc.edu/. Please contact the instructor or TA if you have any questions, problems with the readings or the course, or any other issues that you wish to discuss. Students in this class are encouraged to speak up and participate during class meetings. Because the class will represent a diversity of individual beliefs, backgrounds, and experiences, every member of this class needs to show respect for every other member.

There is a lot of reading. How do I get through it all? The most important thing to do is planning your time. Some tips:

- If you do not have one, get a calendar! Put all due dates and special class activities (e.g. field trips) on your calendar. Probably the easiest and most flexible is Google Calendar, but you may prefer others. You can embed other calendars into your own, such as the UNC City and Regional Planning's, which lists all department events and important academic dates: https://calendar.google.com/calendar/ical/dcrp40unc.edu/public/basic.ics.
• There are lots of resources for time management available, here is a good one: https://students.dartmouth.edu/academic-skills/learning-resources/time-management

• Everyone reads articles differently, you need to figure out how you can effectively read a large volume of material and come away with the main ideas and key points. “Some books should be tasted, some devoured, but only a few should be chewed and digested thoroughly.” – Sir Francis Bacon. Skimming is your friend and an important strategy to keep up with the readings. However, when you see important points, slow down and digest thoroughly.

• Write down questions as you read! If you are having trouble understanding something from the readings or from class, you can submit your questions here http://planquestions.web.unc.edu/. Asking questions is an important part of participating in your own learning process.

• Why are we doing impact assessments? Bloom’s Taxonomy considers educational learning based on different levels of complexity and specificity. Our goal is to climb this “mountain,” where the peak means creating new knowledge and synthesizing the plethora of ideas that you have learned in this class. Creation of new knowledge is the goal.
Course project and grading

Students will conduct a comprehensive series of assessments for a number of development projects. Your reports will detail your recommendations to the local government for managing the impacts that you identify. To make the impact assessment feasible to conduct in a very short period, much of your assignment material is pre-packaged.

The requirements for this course include:

- Active class participation and attendance: 25%
- Linked-In Learning GIS Module (submitted via Sakai): 5%
- Comprehensive impact assessment (7 sections): 70%

Total: 100%

Assignments are due at beginning of class on the due date and can be submitted via Sakai Assignments. Complete all assignments individually; discussions with classmates are encouraged, but all final work must be entirely your own.

### Assessment reports

<table>
<thead>
<tr>
<th>Due date</th>
<th>Topic</th>
<th>Field trips</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Date</td>
</tr>
<tr>
<td>1 September 20</td>
<td>Fiscal impacts</td>
<td>September 18</td>
</tr>
<tr>
<td>September 24</td>
<td>LinkedIn Learning GIS module</td>
<td>October 14</td>
</tr>
<tr>
<td>2 October 18</td>
<td>Water supply/wastewater impacts</td>
<td></td>
</tr>
<tr>
<td>3 November 1</td>
<td>Stormwater impacts</td>
<td></td>
</tr>
<tr>
<td>4 November 8</td>
<td>Climate change impacts</td>
<td></td>
</tr>
<tr>
<td>5 November 15</td>
<td>Health impacts</td>
<td></td>
</tr>
<tr>
<td>6 December 4</td>
<td>Transportation</td>
<td></td>
</tr>
<tr>
<td>7 December 10</td>
<td>Public services</td>
<td></td>
</tr>
</tbody>
</table>
Course textbook and readings


The course Sakai site ([http://sakai.unc.edu/](http://sakai.unc.edu/)) contains course information, handouts, data, assignments, and links to relevant websites.

Other academic business

**Policy on Late or Incomplete Work:** In order to be fair to your fellow students, late assignments will be docked 20% per day.

**Grading Notes:** Generally, an H grade is given for exceptional work that demonstrates a real mastery of course material. L or F work substantially fails to meet minimum requirements either due to incomplete coverage of required information, incorrect results, or sloppy, unprofessional reporting of results.

IF YOU HAVE A MEDICAL EMERGENCY, PLEASE INFORM THE INSTRUCTOR AS SOON AS POSSIBLE. Grades of incomplete may be given in the event of a medical or another emergency. In these cases, a written application for an incomplete on any assignment must state the reasons for the request and propose a new deadline.

**Resources:** Our purpose as professors is to help you to excel in this learning environment. Should you need further assistance beyond the help of the professor, please consult the following on-campus resources:

- The Writing Center: [http://writingcenter.unc.edu](http://writingcenter.unc.edu)
- The Learning Center: [http://learningcenter.unc.edu](http://learningcenter.unc.edu)
- The Learning Center resources for students with learning disabilities (LD) and/or attention-deficit/hyperactivity disorder (ADHD): [https://learningcenter.unc.edu/services/ladhd-services/](https://learningcenter.unc.edu/services/ladhd-services/)
- The Center for Student Success and Academic Counseling: [http://cssac.unc.edu](http://cssac.unc.edu)
- Counseling and Wellness Services: [http://campushealth.unc.edu](http://campushealth.unc.edu)

**The University’s Honor Code is in effect.** The University of North Carolina at Chapel Hill has had a student-administered honor systems and judicial system for over 100 years. The Honor Code represents UNC-Chapel Hill students’ commitment to maintain an environment in which all students respect one another and are able to attain their educational goals. As a student at Carolina, you are entering a community in which integrity matters – integrity in the work you submit, and integrity in the manner in which you treat your fellow Carolina community members. Because academic honesty and trustworthiness are important to professional planning, this is a significant University and Departmental tradition. Your attention is called to the Instrument of Student Judicial Governance for policies and procedures pertaining to the honor system. We are committed to treating Honor Code violations seriously and urge all students to become familiar with its terms set out at [https://studentconduct.unc.edu/](https://studentconduct.unc.edu/). If you have questions, it is your responsibility to ask the professor about the Code’s application. Please consult with the instructor if you are uncertain about your responsibilities under that code with respect to this course.

The University of North Carolina – Chapel Hill facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability or pregnancy complications resulting in difficulties with accessing learning opportunities. All accommodations are coordinated through the Accessibility Resources and Service Office. Any student who feels s/he may need an accommodation based on the impact of a disability should contact me privately early in the semester to discuss your specific needs. Students with documented disabilities should contact the Department of Disability Services at 919-962-8300 (SASB North, Suite 2126; [https://accessibility.unc.edu](https://accessibility.unc.edu)) to coordinate reasonable accommodations.
Course outline

For each course topic, required readings are provided. A special effort has been made to select relevant, timely and well-written readings. Additional resources are listed that can be examined in detail, depending upon your interest in the subject. The source and style of each reading varies considerably. I recommend downloading all of the materials as they may serve you as useful references during future classes or in your career.

*** Reading comprehension and time management are skills. PLEASE READ ASSIGNED MATERIAL BEFORE EACH CLASS***

The professor reserves to right to make changes to the syllabus, including project due dates, when unforeseen circumstances occur. These changes will be announced as early as possible so that students can adjust their schedules.

***Please arrive on time and turn off cell phones in class***

Aug 21, 26, 28: Course overview, impact assessment history, uses, and key choices

Class session 1: Course overview

For those new to planning and in need of an overview of planning and infrastructure relationships:
Textbook: Chapter 3 (Growth, Demand, and the Need for Infrastructure) and Chapter 5 (Local Plans and Infrastructure)

Class session 2: Key choices 1-4

Textbook: Chapter 7 (Smart and Sustainable Development Rules) and Chapter 14 (Exactions and Impact fees)

Class session 3: Key choices 5-7

Textbook: Chapter 4 (Institutions of Infrastructure: The Providers) and Chapter 8 (Developing the Public Infrastructure Project)


Additional resources providing an overview of development impact assessment:

Additional resources on specific aspects of development impact assessment:

Examples of environmental assessments on Sakai:
• Domestic Example: City of Lakewood, CA. 2007. Master Environmental Assessment (MEA) for the City of Lakewood Comprehensive General Plan.

Sept 2: Labor Day – NO CLASS

Sept 4, 9: Fiscal Impact Assessment


Additional resources
• Textbook: Chapters 9-15 [comprehensive overview of infrastructure financing]
• See zipped file listing several “foundational readings” on fiscal impact assessment on Sakai

Sept 11, 16: Water supply impacts

Class Session 1
Textbook: Chapter 16 (Water Supply)

Class Session 2


Additional graywater/water re-use resources

Additional infrastructure financing resources
Additional infrastructure planning resources

**Sept 18: Field trip to OWASA water treatment plant**

**Textbook:** Chapter 16 (Water Supply)

**Sept 23: Mary Tiger (Sustainability Manager at OWASA), Guest Speaker ***

**Textbook:** Chapter 16 (Water Supply)

**Sept 25, 30, Oct 2: Geographic Information Systems (GIS) for impact assessment** (guest taught by Philip McDaniel, UNC GIS Librarian. Meet in Davis Library Room 247)


**PRIOR TO CLASS:** On your own, please complete the Linked-In Learning course, “Learning QGIS” (1:45) at http://linkedin.unc.edu/. This course augments the GIS overview section of PLAN 745 and consists of 10 modules scheduled to take approximately 1.75 hours. At the end of the course, you will receive a PDF certificate, which you can submit via Sakai Assignments feature (due: September 24th). Please come with any questions you have about GIS or QGIS.

*** If you have not had previous GIS training (e.g. PLAN 491/591), you are required to enroll in the Linked-In Learning course “ArcGis Essential Training,” which consists of 13 modules scheduled to take approximately 5.5 hours. If you need more basic training (i.e., you have never been exposed to GIS at all), you should also complete the course, “Learning ArcGIS” (3.25 hours) prior to the “ArcGis Essential Training” course.

Additional resources
  - This is a tutorial created for QGIS, a free and open-source alternative to ESRI’s ArcGIS hegemony. Great worksheets and information on GIS concepts

Additional resources

**Oct 7, 9: Wastewater impacts**

**Class Session 1:**

**Overview:** **Textbook:** Chapter 17 (Wastewater and New Paradigms)

**Class Session 2:**

oct 14: field trip to owasa wastewater treatment plant

oct 16, 21, 23: stormwater peak discharge (quantity) and quality impacts

class session 1:
overview: textbook: chapter 18 (stormwater and flooding)

class session 2:

class session 3:

additional resources

oct 28, 30: climate change impacts and lifecycle assessment (instructor: jordan branham)
overview: textbook: chapter 27 (energy and power)

additional resources on general climate impact analysis issues:
• Elizabeth Wilson and Jake Piper. 2010 chapter 2: Climate Change Mitigation and Adaptation: Impacts and Opportunities, pgs. 18-43 in Spatial Planning and Climate Change. Routledge.

additional resources on lifecycle assessment:

nov 4: health impact assessment

Additional resources
- UCLA HIA Clearinghouse: http://www.hiaguide.org/

**Nov 6: Wetland/stream impact assessment**

**Textbook:** Chapter 29 (A New Paradigm for Infrastructure)

Additional resources

Additional resources (policy-focused):

**Nov 11, 13, 18: Transportation impact assessment** (Sessions 2 and 3 – Joshua Reinke, Traffic Engineer, Ramey Kemp and Associates)

**Class Session 1:**
**Textbook:** Chapter 20 (Streets and Streetscapes) and Chapter 21 (Automobiles and Mass Transit)

**Class Session 2:**

**Class Session 3:**

Additional resources
- Numerous Examples of Traffic Impact Assessment Reports are located on Sakai.
Nov 20: **Habitat impacts, fragmentation, and offsets**


Additional resources


Nov 25, 27: **Thanksgiving Break (NO CLASS)**

Dec 2, 4: **Public service impacts**

**Textbook:** Chapter 25 (Public Schools as Public Infrastructure) and 21 (Parks, Recreation, and Open Space)

Additional resources